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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/927,992	08/10/2001	Lawrence A. Gould	48473/262367	7409

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EXAMINER

D AGOSTA, STEPHEN M

ART UNIT	PAPER NUMBER
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2683

DATE MAILED: 07/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/927,992

Applicant(s)

GOULD ET AL.

Examiner

Stephen M. D'Agosta

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 August 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

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DETAILED ACTION

Priority

Applicant's claim for domestic priority under 35 U.S.C. 119(e) is acknowledged but there is no priority claim to a provisional application in the Oath/Declaration (which is required). Hence, priority is not granted.

Oath/Declaration

Applicant is now required to submit a substitute declaration or oath to correct the deficiencies set forth – **claims for priority to provisional application(s) must be documented in the Oath/Declaration.** The substitute oath or declaration must be filed within the THREE MONTH shortened statutory period. Extensions of time may NOT be obtained. Failure to timely file the substitute declaration (or oath) will result in **ABANDONMENT** of the application.

Drawings

The drawings were received on 8-10-2001 and have been reviewed by the draftsman and examiner.

Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

The examiner interprets figures 2-5 as directly relating to the application's inventive matter (ie. an RDF device and use thereof to determine location), otherwise these figures should be labeled Prior Art as well.

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc. **The word "invention" should be removed.**

2. The specification (page 1) claims priority to several provisional applications yet the Oath/Declaration does not claim priority.

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3. The specification (page 1) claims the application is related to another US Patent application, but the serial number is blank. Please correct.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 4-9 and 14-15 rejected under 35 U.S.C. 102(e) as being Fitch et al.

US 6,212,392 (hereafter Fitch).

As per **claim 1**, Fitch teaches a system for determining the location of a radiotelephone from which a call to an emergency telephone number is made (C1, L43-49), the system comprising:

An MSC (figure 1, #30)

At least on BTS in communication with the MSC (figure 1, #26a, b, c)

A plurality of wireless transmission antennas wherein each wireless transmission antenna is in communication with one BTS (figure 3 shows location finding hardware located in each cell that communicate wirelessly with the mobile #28 and hence inherently require a transceiver and antenna)

A location processor, the location processor being in communication with the MSC (figure 3 shows a location finding system/computer, #36/#54 and C7, L22-35)

A plurality of radio detection finding devices, one RDF device being installed adjacent a wireless transmission antenna (C7, L61 to C8, L18 teaches direct (or indirect sources), #60a-60n (or 62) which determine angle of arrival and are located in each cell and which is passed back to the location computer).

Wherein the location processor is capable of determining the location of radiotelephone through triangulation calculation (C1, L50-61 and C8, L18-37 – the examiner notes that while Fitch focuses on location determination via quad-tree, triangulation is disclosed and well known – other location determination methods can be substituted as well, including TDOA, GPS, etc., as disclosed in C7, L63-67).

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As per **claim 4**, Fitch teaches claim 1 wherein the MSC communicates information related to an emergency radio signal to the location processor (C8, L23-29).

As per **claims 5-8**, Fitch teaches claim 1 wherein the wireless antennas support CDMA, TDMA, FDMA or GSM (C1, L13-16 teaches analog or digital cellular communications which reads on CDMA, TDMA, FDMA or GSM).

As per **claim 9**, Fitch teaches a method for determining the location of a radiotelephone from which a call to an emergency number is made, the method comprising:

- Receiving radio signal information related to an emergency call from a MSC (C8, L22-29)

- Receiving a location request from a MSC (C8, L29-36 and C7, L61 to C8, L18)

- Receiving angular information from at least two radio direction finding devices (figure 3, #60a-60n receive/calculate AOA data)

- Employing a triangulation method to calculate the location of the radiotelephone (C1, L58-61)

- Transmitting information about the location to the MSC (figure 3, MSC #30 connected to location computer #36/#54 whereby two arrows are shown "to/from" MSC and computer which the examiner interprets as location information flowing both ways).

As per **claim 14**, Fitch teaches claim 9 wherein each radio direction finding device is installed adjacent one wireless transmission antenna (C7, L60 to C8, L2 teaches the direct sources 60a-60n can be at the same location as a BTS antenna).

As per **claim 15**, Fitch teaches claim 14 wherein the step of employing a triangulation method further comprises:

- Obtaining geographical location information for the wireless transmission antennas associated with the at least two radio direction finding devices (C7, L35-60 teaches using the many direct sources, figure 3, #60a-60n, whereby their lat/long is determined and then used to locate the mobile user), and

- Determining geographical coordinates of the radiotelephone (C7, L35-48 refers to the location determination computer, figure 3, #36/#54 using the lat/long data from direct sources to determine the location of the mobile user).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2 rejected under 35 U.S.C. 103(a) as being unpatentable over Fitch US 6,212,392 (hereafter Fitch).

As per **claim 2**, Fitch teaches claim 1 wherein the RDF device comprises:

A receiving connected to the radio direction finding processor (figure 3 shows direct sources, #60a-60n communicating wirelessly with mobile phone and hence inherently requires a transceiver and antenna)

A plurality of antennas wherein the plurality of antennas are controlled by the radio direction finding processor (Fitch teaches the direct sources can be located at/in a BTS, C7, L66 to C8, L2, which are controlled by a BTS/BSC processor)

But is silent on A radio direction finding processor.

Fitch does teaches that AOA and/or TDOA is determined at the direct source (C7, L61-67) which inherently requires a processor to perform calculations.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Fitch, such that a radio direction finding processor is used, to provide means for determining AOA/TDOA to pass to the location computer.

Claim 3 rejected under 35 U.S.C. 103(a) as being unpatentable over Fitch as applied to claim 2 above, and further in view of Pfeil et al. US 6,252,867 (hereafter Pfeil).

As per **claim 3**, Fitch teaches claim 2 **but is silent on** wherein the radio direction finding processor samples sequentially the plurality of antennas for radio signals.

Pfeil teaches an apparatus/method determines a location of one or more remote units in a wireless communication system by employing a phased array antenna and a programmable receiver switching apparatus. The programmable location engine employs cascaded time of arrival and direction of arrival algorithms to determine per remote unit location data. For those portions of the location engine that can be performed simultaneously on multiple carriers, receivers are dynamically assigned to unique carriers to facilitate parallel processing. For the portion of the programmable location engine that requires sampling of the entire antenna array, such as for angle of arrival determinations, the receivers are programmed to sample all of the given phased

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array and antennas elements that are temporarily assigned to a same carrier for data acquisition and subsequent processing (C3, L29-55, specifically L50-55).

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Fitch, such that the RDF processor samples the plurality of antennas, to gather location data from each antenna as the user roams which will provide highly accurate location data from multiple antenna angles.

Claims 10-12 rejected under 35 U.S.C. 103(a) as being unpatentable over Fitch as applied to claim 9 above, and further in view of Bi et al. US 6,438,380 (hereafter Bi).

As per **claim 10**, Fitch teaches claim 9 **but is silent on** wherein the radio signal information includes radio frequency.

Bi teaches location determination of a mobile user whereby the instructions from the base station include receive information which, in one embodiment, comprises communication channel information for identifying a specific communication channel to monitor, a search window for defining a time interval for monitoring the communication channel, and timing information for time synchronizing the location terminals with a common time reference. Note that the communication channel information will vary according to the multiplexing technique being used by the wireless communication network and the mobile-telephones--that is, the communication channel information can include a frequency range, and a time slot. If Time Division Multiple Access (TDMA) is the multiplexing technique, then the communication channel information should specify a frequency range and a time slot (C4, L49 to C5, L3). Hence, one skilled would monitor/track various RF signal parameters, based on the specific type of cellular system used, to gather support data to assist in location determination.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Fitch, such that the radio signal information includes radio frequency, to provide means of gathering all pertinent mobile user data to provide to the location determination/911 system.

As per **claim 11**, Fitch teaches claim 9 **but is silent on** wherein the radio signal information includes a special code.

Bi teaches location determination of a mobile user whereby the instructions from the base station include receive information which, in one embodiment, comprises communication channel information for identifying a specific communication channel to monitor, a search window for defining a time interval for monitoring the communication channel, and timing information for time synchronizing the location terminals with a common time reference. Note that the communication channel information will vary according to the multiplexing technique being used by the wireless communication network and the mobile-telephones--that is, the communication channel information can include a code. For example, if Coded Division Multiple Access (CDMA) is the multiplexing technique, then the communication channel information should specify a frequency range and a code to monitor (C4, L49 to C5, L3). Hence, one skilled would

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monitor/track various RF signal parameters, based on the specific type of cellular system used, to gather support data to assist in location determination.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Fitch, such that the radio signal information includes a special code, to provide means of gathering all pertinent mobile user data to provide to the location determination/911 system.

As per **claim 12**, Fitch teaches claim 9 **but is silent on** wherein the radio signal information includes a time slot information.

Bi teaches location determination of a mobile user whereby the instructions from the base station include receive information which, in one embodiment, comprises communication channel information for identifying a specific communication channel to monitor, a search window for defining a time interval for monitoring the communication channel, and timing information for time synchronizing the location terminals with a common time reference. Note that the communication channel information will vary according to the multiplexing technique being used by the wireless communication network and the mobile-telephones--that is, the communication channel information can include a frequency range and a time slot. If Time Division Multiple Access (TDMA) is the multiplexing technique, then the communication channel information should specify a frequency range and a time slot (C4, L49 to C5, L3). Hence, one skilled would monitor/track various RF signal parameters, based on the specific type of cellular system used, to gather support data to assist in location determination.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Fitch, such that the radio signal information includes a time slot, to provide means of gathering all pertinent mobile user data to provide to the location determination/911 system.

Claim 13 rejected under 35 U.S.C. 103(a) as being unpatentable over Fitch as applied to claim 9 above, and further in view of Bar et al. US 6,456,852 (hereafter Bar).

As per **claim 13**, Fitch teaches claim 9 **but is silent on** further comprising translating the location of the radiophone into a street address.

Fitch does teach using lat/long coordinates (C7, L47-51 and can use any other system/format).

Bar teaches determining the location of cell phone users and easily and inexpensively distributing real time location information of cellular telephone users to various third party information subscribers. A dynamic database of current cellular users is created and is maintained at a central server machine. The database has a list of caller entries, where each entry typically comprises a user ID number, such as a phone number, mobile ID number, and/or handset serial ID. The entry also includes, for each user ID number, a user location identifier such as a latitude and longitude, a sector number, a caller or called phone number and/or a street address. Each entry can include additional information as well, such as a current base station for the user and a most recent registration time of the user (title, abstract and C2, L9-23).

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It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Fitch, such that location is translated into a street address, to provide a more human-friendly position/location of the mobile unit to 911 workers who can dispatch help to a street address rather than a Lat/Long.

Claim 16 rejected under 35 U.S.C. 103(a) as being unpatentable over Fitch as applied to claim 15 above, and further in view of Khan et al. US 5,646,632 (hereafter Khan).

As per **claim 16**, Fitch teaches claim 15 **but is silent on** wherein the step of employing a triangulation method further comprises:

Determining a best pair of geographical coordinates by averaging geographical coordinates.

Khan teaches location determination whereby a processor rapidly calculates an average geographic location of said portable communication device over a predetermined period of time or for a predetermined number of samples to offset errors.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Fitch, such that triangulation averages geographical coordinates, to equally weight and make use of all data gathered which will give a more optimal location instead of just using one antenna's location/position data.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

1. Oros et al. US 6,167,275.
2. Ghosh et al. US 5,764,188.
3. Rimer US 5,432,841.
4. Parl et al. US 5,883,598.
5. Song US 5,208,756.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. D'Agosta whose telephone number is 703-306-5426. The examiner can normally be reached on M-F, 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Trost can be reached on 703-308-5318. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Stephen D'Agosta

